

ABSTRACT

An article comprising a support portion that is coupled to an element portion, both of which portions are formed from some of the layers of a multi-layer substrate. In one embodiment, the support portion comprises a torsional member, an actuating plate and a beam, wherein the beam mechanically links the actuating plate and the element portion. At least one torsional member attaches the support portion to the multi-layer substrate and allows the element portion to move independently of the substrate, such as when actuated by an underlying electrode. When actuated, the actuating plate of the support portion is drawn toward the underlying electrode while the element portion rises from a first (unactuated) position within the substrate toward a second (actuated) position outside of the substrate, in see-saw like fashion. The present article is useful in a variety of applications, such as, for example, optical applications where it can be used to form improved chopper switches and optical cross connects.

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